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at Moyobamba, on the eastern slopes of the Andes. For many days I revelled amongst these splendid productions. There was little else to be found in the dell; no Coleoptera; a short distance off, however, towards the denser forest, I found a grand new Anisocerus on a felled tree; it is a very large species, coloured and tubercled like the Curculiones of the genus Cratosomus, and is doubtless new to Science. I also captured, on the wing, a charming little gaily-coloured Saperda, and a new Agra between the folds of a leaf. There was also a species of dragon fly, of the genus Hetærina, which I think is not described in De Selys' 'Monograph;' it is allied to H. ænea of De Selys. Near the same felled tree where I found the Anisocerus I captured a very curious Elater, yellow and black, with flabellate antennæ, neatly retractile within a deep chink on each side of the prosternum: I have two other species of the same character from Ega, and am very curious to know what genus they belong to. At the same place, too, I found a new species of blue Agrodes, the handsomest genus of the Staphylinidæ; and, again, on a bright, sunny day, I caught a brilliant brassy species of the curious genus Tænodema, which came flying rapidly near the ground, and settled on a woody stem, just as the Megalopi (family Cyclica) do. All these Coleoptera, however, were only single specimens; and I was much disappointed, after many days' search in the same places, not to find more of them.

In the pathways in the forest I met (as is always the case in this country) with a different set of insects. I had made up my mind, before I undertook this excursion, to discover further new species of Papilio of the group Bolivar, Orellana, &c., and also one or two Leptalis; in this, however, I was disappointed: I saw nothing new in the genus Papilio on the whole voyage, and not a single Leptalis, although six species occur at Ega at this season. Heliconiidæ at Tunantins were also very rare. I got one new Heliconia, and one charming new Ithomia, very distinct in colouring from any, I think, yet known. Other Ithomiæ were, one or two I. Sao, *Hubn.*, I. Vestilla, *Hewits,* I. Fluonia, *Hewits.*, and a species very near to I. Cyrianassa, but I am inclined to think distinct; I. Cyrianassa occurred rather commonly at Fonte Boa, as it does at Parà; and this Tunantins species was pretty common up the Tapajos, where the true Cyrianassa did not occur. The Ithomiæ, to me, are a most interesting group of insects; the species differ from each other by very slight marks; they should be studied with very minute reference to their geographical site. In one district all the hundreds of individuals that occur of a

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species will, in nearly all the specimens, be exactly similar; and in another district a species, so nearly allied that if found mingled with the other would be considered a variety, will be found equally constant through all the individuals examined. In Nymphalidæ I found nothing new in the forest; in Satyridæ, two Euptychiæ, new,—and a small pale blue Satyrus, a charming thing, also new. In Erycinidæ I met with three new species, of genera I am not acquainted with, and four new species of Eurygona, two of which were of a colour quite different from any of the sixty species I had previously taken of the genus, being crimson, with velvety black borders. At Fonte Boa, a few weeks afterwards, I found a third species of the same colours; so that we have here the commencement of a district where these charming insects offer a new style of colour, in the same way as the mid-Tapajos region yielded four species of the delicate blue-edged group, of which Euoras and Arbas, figured by Mr. Hewitson, are examples. The red species are certainly not found at Ega. In Theclæ I acquired two new species; in Hesperidæ I met with none new; in moths, one new Glaucopis, several new Lithosiadæ, and two magnificent Bombyces, several Noctuæ and Geometridæ new to me. Coleoptera here were remarkably scarce; but the few I met with were nearly all new to me. Such were a grand Erotylus, nearest, perhaps, to E. aulicus, *Lac.*; four new large Staphylini; a Scytalinus which was flying straight forward near the ground, exactly as the Agrodes, of which I got here a new brassy black species. The Agrodes are not stercorarious; I have never detected them feeding, but I think they search for particles of putrid matter, or perhaps living insects amongst fallen leaves. I got here two new Doryphoræ, one Chrysomela, one or two Hispæ, one Chlamys, several Eumolpi, and five species of Haltica, but not a single Cassida or Clythridæ, and only one or two Ega species of Megalopides. In Lamellicornes my only capture was a large species of Anomala, new,—and one or two Canthidium, *Er.*; in Clerii, one very fine new Ichnea; in Cicindelæ, nothing at all; and very few Curculionidæ. Neither was there anything in Longicornes, Buprestidæ or Elateridæ. Finding so very few Coleoptera in the forest in comparison with Ega, I inquired my way to the new clearings which the inhabitants of the villages annually make in some direction or other; and one lovely, warm morning I visited one of them, a very large one, over an acre at least of ground. Here, in the midst of a chaos of felled trees, partially burnt and of many different kinds, I expected to find a great number of Longicornes, in the same way as I had done at Ega, Santarem and Caripé. I crossed the place, examining all the trees and their branches, ripping up the bark, and so forth; then I skirted the edge of it, for one half its circuit, to where the ground sloped down to a brook, but was unsuccessful: the only Coleoptera I found was a Clytus Wallacei, *A. White*, a small Leiopus, and a new species of Helopidæ. One day I determined to fish for water-beetles, and tried some insignificant pools of muddy water in the forest; I acquired in this way two or three species of a pretty genus, having the facies of the European Hydaticus, but smaller than the English species; I got also two or three curious species resembling Hydroporus, and a Tropisternus, in abundance. Of all aquatic Coleoptera in this country, species of Tropisternus and Berosus only are abundant: at certain seasons they fly to the lamp at night in great numbers. On the bordering edge of the forest several species of Nymphalidæ were always to be seen, some of which do not frequent the edge of the water; such were the Epicaliæ, Paphiæ, Siderones, Eresiæ, Protogonius, Eueides, Hypna, Victorinæ, Stheneles, Thyridia Psidii, with several Callidryades, Terias, Colænis and Agraulis, all common species. On the banks of the river I captured two very rare species of Pieris, one of which is the P. Lorena of Hewitson.

Such is a sketch of what I observed at this place. The summary of my captures in insects during the twenty days was 607 specimens, about 300 species, of which 20 were new diurnal Lepidoptera and 66 new Coleoptera. I acquired also a few new things in other orders, the most interesting of which was a quite new species of Thore, *Hagen*, a genus of Calopterygidæ, in the Neuroptera. I carried my gun with me only two days, shooting only two birds new to me, one a small parrot, and one a chatterer, I think common, the Coracina rubricollis. One day an Indian hunter brought me a pair of a very handsome little monkey, a Midas, new to me: I had previously known five species of the genus.

I left Tunantins with less regret, finding Coleoptera so scarce; but, as I intended to spend six or seven weeks at Fonte Boa, I hoped to succeed better. We left in an excellent little schooner of about eighty tons burthen, dropping down gently with the current, sometimes stopping for a short time to receive small portions of cargo. At a sandy beech, which was now rapidly becoming submerged as the river was rising, I searched for Megacephalæ, but found nothing except M. curta, and the other rather smaller species closely resembling it. At 10 A.M. on the 3rd of December we entered the mouth of the river Jutahi, which is nearly concealed from view, from the main river, by two or three small islands. We had to stay here several days, so procured a sheltered place within the mouth of an affluent on the right bank, called the Sapó, and then moored the vessel alongside the forest. The Jutahí is not a black-water river, but still not clay-coloured like the Amazons; in breadth it is very inferior to the Rio Negro, Tapajos and Madeira, and shows itself to be only a second-rate tributary; it seemed to me to be about equal to the Purús. We had to send hence an igarité to fetch a quantity of salt fish from a settler up a second affluent of the river on the right bank, called the Cupatánà. The master of the schooner, a pleasant young Paranese and friend of mine, preferred staying to take a trip with me to the mountain up the Sapó. The first and third days of our stay I examined the forest in the vicinity for insects; on the second, Senor Francisco Raio and myself, with one Indian, started on our trip. We paddled up, for a distance of about twelve miles, to the last house, and on our return visited three other houses. The inhabitants were Indians very little removed from their original state. We found two persons who could speak Portuguese pretty well; the rest were Indians of the Maraúa and Jurí nations; the latter were old, the lingering relicts of this once fine, manly and industrious race, which once peopled the Upper Amazons and the lower parts of the tributaries from the Teffé to the Içá. They were (as all I have seen) marked with a large, blue-black, tatooed patch on the face; in some it is merely the circuit of the mouth so marked, but in most of them it is a large and quadrate patch, occupying the greater part of the face. We came upon some of these fine old men fishing under the shade of the lofty, sombre wall of forest; they were polite and cheerful, and not sulky as most of the civilized Tapuios are. At the last house I tried the forest for insects, but could not succeed in finding a path, so was unsuccessful.

On our return, at one of the places we stopped at, I found an excellent locality. There was a broad path from the river bank, leading through the forest to the house, and the neighbourhood of the latter had a wonderful variety of trees and plants. It was now evening, however, and I had only time to make a short, hurried search, getting two very handsome new Cassidæ and other things.

I obtained some information here about the river Jutahí. The description given me of the physical features and the names of the "gentios," or races of savage Indians inhabiting the banks, agreed with what I had before learned of the river Juruá. The sources of both are equally unknown, canoes having ascended two months and upwards without reaching anything like a termination of the navigation. The banks are earthy and low, similar to the Amazons, and uniformly covered with forest. The tribes of Indians succeed each other in the following order:—Maraúas, Arauás, Catoquínos, Catauixís and Coníbos, the last-mentioned having communication either by land or a connecting stream with the Ucayáli.

On the evening of the 7th December we arrived at Fonte Boa, a wretched, muddy and dilapidated village, situated a mile or two within a creek appearing like a back-water of the main river. The character of vegetation and soil here was different from that of any locality I had searched on the Upper Amazons; I had planned, therefore, to devote six weeks to the place. Having written beforehand to one of the principal inhabitants, in the course of an hour I had a house, and got all my baggage comfortably stowed before dark. The village is built on two rounded, clayey mounds, and has rather a large tract behind cleared from the forest; but the whole place, including the streets and backyards of the houses, is covered with a very dense, tough carpet of shrubs and grasses, beneath which the mud is almost always moist and soft; so that, although living in a mud swamp is not very agreeable, the coolness of the place was very pleasant, and certainly healthy. The village was formerly a considerable place, with an industrious population of whites and Indians, who mingled together, so that now there are few of the pure Indian blood left. The tribes were originally Shumánas and Passés, which now no longer exist, and will soon be forgotten like the Solimoés (who gave the name to the Upper Amazons), the Cambevas (part of the original population of Ega), and others.

I found the forest at Fonte Boa, as far as I penetrated it, to have the same cold, clay soil as the water frontage at the village; the vegetation was the most luxuriant and the forest trees the most gigantic I had ever seen. Through the shades flowed two sparkling brooks, with perennial and crystal waters, a feature rare to meet with on the Upper Amazons, where the small water-courses generally dry up in the dry season. Their banks were perfect paradises of verdure, the most striking feature of which was the variety of ferns with immense fronds, some terrestrial, others climbing the trunks of trees, and two (at least) fine species arboreal. Birds and monkeys, in this glorious forest, were very abundant,—the Pithecia irrorata the most remarkable of the monkeys, and Cephalopterus ornatus, Pteroglossus Beauharnaisii, amongst the most beautiful of the birds. On the North bank of the Amazons, opposite Fonte Boa, the red-haired, vermilion-faced monkey (*Brachyurus rubicundus?*) is known to be common;

and yet in the six weeks I spent in the neighbourhood I could not obtain a specimen of it. The distribution of these curious monkeys is very remarkable. There appear to be three species, two of which I have seen plenty of alive at Ega, where they are very expensive. They are all three confined to the low lands constituting the delta of the Japurá, none of them reaching so far east as Ega or so far west as St. Paulo. The white one (*B. calvus?*) is confined to the eastern part of the delta, and the red one to the western part. Some few leagues within the main mouth of the Japurá is found the third species, ashy coloured, the face not red. This last I have not yet seen.

Entomology at Fonte Boa promised very well in the beginning; but after the 4th of January a period of heavy rains set in which interfered very much with my success. On the first day a magnificent new Nymphalide, which settled on a leaf of a tree before me in one of the broad forest pathways, gave me great hopes of future success. It proved to be an aberrant species of Catagramma, coloured above similar to C. cynosura, but quite plain beneath like the Epicaliæ, so that it seems intermediate between the two genera. I did not succeed in finding a second specimen. A few days afterwards I got a specimen of another new Eubagis, and after I had beaten the woods three weeks I alighted on a charming dry hollow, quite alive with Ithomiæ, comprising I. Illinissa, I. Ælia, I. Cyrianassa, I. Fluonia, another common species, and four new species, three of which are very interesting, being intermediate between I. Illinissa and I. Ælia. I captured a series of each, and found, notwithstanding their singularly close resemblance, that each species kept itself perfectly distinct. Sometimes, when a number of very nearly allied species of butterflies, such as Mechanitis and Ithomia, are found flying together in the same locality, the idea of hybridity suggests itself almost irresistibly; but I have closely watched for proof of this, and have found none. On the contrary, at Ega, where four species of Mechanitis are about equally abundant in the same confined space, I have frequently captured pairs *in copulâ;* the male and the female invariably agree precisely, spot for spot and line for line. I have not yet seen Ithomia *in copulâ*, except once, and then the two individuals were precisely the same in markings. That a number of allied species should be found together is to be explained by the fact that both genera are very gregarious: one limited spot, of a few yards in extent, will be the only place, at one station, where you find any Ithomiæ, and there all the species of the district will be found assembled. At Fonte Boa I found two Ithomia haunts, the one above mentioned, and another where four other different species congregated, namely, I. Sao, I. Vestilla, I. Onega, and I. Virginia, *Hewits.* (Exot. Butt., Ithom., fig. 18). At Ega I. Vestilla and I. Sao assemble in one place, in the months October to December, in countless numbers; the forest dell is alive with them, fluttering and gambolling together about the foliage near the ground; in company with them are the two handsome species resembling Thyridia, but much rarer.

In Coleoptera I made some charming acquisitions. First of all an Iresia, the first I have captured since I have been in the country, although I had seen two at Santarem, but was unable to capture them, from their habit of running over the cylindrical trunks of trees, where the net is difficult to apply. I found also a new brilliant-coloured Odontocheila, four new Lebiæ and one Coptodera, two new Ozænæ (Goniotropis); the Lebiæ run very nimbly over foliage; the Coptoderæ are found only on decaying, fallen trees. I got four new Cassididæ, one (I think) an undescribed Omaspides, one (also undescribed) Dolichotoma, and one Calliapsis; the fourth is a very fine thing, even the genus unknown to me. Another capture, which pleased me extremely, was a Megalopus, of the section having densely hirsute hind tibiæ. Lacordaire describes two species, mine will make a third; I captured it from the terminal bud of some low-climbing plant, and thought I had got a new Necydalis in my net. A curious Chlamys was common here, and I added a fine new species to my Alurni. A large number of the Eumolpi which occurred were new to me, and many of them were very pretty. A new species of Doryphora was common, and I found a solitary specimen of another, very peculiar in its colours. In Lamellicornes I met with nothing very conspicuous. One day I got a large brilliant Chlorota from a leaf rather high up a tree, and found soon afterwards that the trees over head swarmed with them; doubtless they were gnawing the fruit, as is the habit of many of the Rutelidæ; but, although they fell when I shook the trees, booming past my ears, I could not capture a single specimen: they made off through the entangled thicket, whither it was impossible to pursue them. I found a pretty species of Bolax, rather frequently, gnawing leaves; it was quite new to me. The Copridæ were less interesting; there were several new small species, as is the case in each new station one visits. In Longicornes I found three new species, in Elateridæ only one conspicuously new, and in Buprestidæ not one species new to me. In Erotylidæ there was a large Erotylus (true), rather common, and new to me; it is yellow-belted, whilst the corresponding species at Ega are red-belted, the latter not occurring at Fonte Boa. The Erotylidæ of this country, like the Heliconiidæ, I think are an interesting study, rich in suggestive material for theory.

On the 25th January I embarked on the steamer for Ega, arriving there on the following day. The latter part of my stay at Fonte Boa was anything but agreeable or profitable. The excessive rains had succeeded in converting the whole place into a glutinous mud-swamp. The house in which I lived, the only one procurable, was very damp; the moisture oozed through the mud floor, and I became afraid of my collections suffering from the damp; for besides the choice collection of insects, increased by 895 specimens at Fonte Boa (about 100 new species), I had acquired a large collection of monkeys and birds. My last excursions to the forest were made through mud half-way to the knees. The mosquitos were incessant day and night; the plague of insect pests I had not felt so much whilst I was constantly amused and occupied, but in bad weather, when little or nothing can be done, they become intolerable: no one can imagine the state of feverish irritation to which the unceasing attacks of mosquitos reduce a nervous person. There is no place free from them; the rooms are always filled with a humming swarm, especially towards the ground, where they penetrate any thickness of trowsers. In the forest it was infinitely worse; I noticed the species were different also, the forest species being much larger and having transparent wings: it is a little cloud one carries about one's person every step on a ramble in the forest, and their hum is so loud as to prevent one hearing well the notes of birds, &c. In the village the species has opaque speckled wings. The inhabitants ought to be thankful the great fellows never come out of the forest. At Tunantins there were very few mosquitos; the pest was Pium, which attacks only the bared parts of the body, and in the day time. It is a small muscide, fixing itself on the skin, and sucking the blood through its rather broad proboscis, so as to leave, after it is satiated, a little red pustule. They come silently, and cause a very disagreeable irritation; at Tunantins they filled the house like a thin cloud of smoke, and there were no means of protecting oneself from their attacks. The mosquito-net is of course an effectual protection at night, but in the day time it is too confining to use.

Upon the whole I am pretty well satisfied with my excursion. The inhabitants of the villages, although almost as savage as the wild Indians of the retired districts, and much more demoralised, are not offensive to strangers. With a little tact, I find it always easy to get along with them; and it is scarcely anything I want of them except fowls, turtle and fish, and other articles of provisions; for hunger is the great difficulty with the traveller in the Upper Amazons.

HENRY WALTER BATES.

Ega, March 10, 1857.

Remarks on the Necessity of precise Definitions in Attempts to Distinguish Reason and Instinct. By the Rev. EDWARD TAGART, F.L.S., F.G.S., &c.

I HAVE read with great interest and pleasure the Rev. J. C. Atkinson's paper in the 'Zoologist' on the subject of Reason and Instinct. Although it seems to be in some respects too metaphysical for a work devoted to Natural History, yet, as all sciences are connected, and all are advanced by the use of distinct terms significant of distinct ideas, perhaps you will allow one who has hitherto been more of a metaphysician than a naturalist to offer one or two suggestions, in reference to Mr. Atkinson's paper, which may help still further to clear away difficulties and harmonize discordant modes of expression on points confessedly obscure. Possibly a few brief remarks on the same subject by a different hand may open to Mr. Atkinson himself some vistas of reflection to which his glances have not hitherto been directed,—some paths of investigation which he has not been tempted to tread.

The question, as Mr. Atkinson has discussed it, seems to be very much this,—How far are animals, or creatures whom we are accustomed to speak of as guided by instinct, participants of reason, which is the characteristic of man? It may be a further question,—How far is man, as a reasoning being, assisted by the instincts, as we call them, of the lower orders of being?

But there is a prior question essential to the discussion; that is,—What do we mean by instinct and by reason? Do we know what we are talking about when we use these terms? I submit that both are *terms of ignorance.* With regard to the first term, instinct, that it is so may be most easily shown. We say the bee constructs its cell, the bird its nest, the spider its web, the beaver its house, by *instinct,* because we know nothing of any process of calculation, observation or anticipation, which these creatures go through. Horne Tooke would say Instinct is a Latin participle, derived probably from "tingo," *to dye*, and is significant of the colour or quality with which any object may be imbued. But what the power or quality is with which the creatures are endowed whom we speak of as endowed with instinct; what process of observation, reflection, abstraction or calculation they go through; what conscious recollections or anticipations; what power of will they possess or exercise, we know not; and nothing is added to our knowledge of the actions, or causes of the actions, of insects and other animals by saying they act from instinct. By constantly using the term we imagine that we mean something distinct by it; but when we begin to reason with it or upon it we find it associated with a variety of indistinct and confused impressions, without any one impression sufficiently clear and permanent to make an item in reasoning or calculation.

But how is it with *reason?* Is this also a term of ignorance? It will seem strange to very many to say we know not what we mean by reason, so often proudly called the high prerogative, the distinguishing faculty of man. But, give it what other names you please, bestow upon it the grandest epithets, I ask, Is it susceptible of such a definition as shall make it a safe term in a syllogism, sufficiently clear for a valid inference or a well-conducted argument? Before you can decide whether animals have reason, you ought to know at least what it is in man, whom you acknowledge or consider to possess it. But do we know what it is in man? Is it a single power or a combination of powers? If the latter, as on a little reflection many will concede, what and how many are the powers which it includes? Here we may soon lose ourselves in a very embarrassing inquiry, in which I fear the metaphysicians, and the great Locke among them, furnish but little help. Let us proceed with caution.

When we say that man is endowed with reason, I do not question but we know what we mean with sufficient exactness for ordinary converse, and the business of life to which that converse applies, because we experience in ourselves and we observe in others the powers which are esteemed and called rational; and we exercise these powers, and observe their exercise, freely and constantly. But when we try to separate them from one another, and to distinguish them, when so separated, by specific names or marks,—in short, to analyze the complex idea associated with the term reason;—when we try to ascertain and describe, with precision and exactness, any one of the many differing and complex processes of thought and action which come under the term rational, which are equally entitled to the term, and equally characteristic of the being to whom it is peculiarly applied;

then I conceive we put ourselves upon a course of inquiry into which very few have entered, and in which the many would find themselves at once utterly lost.

But it is something to know and to acknowledge that the term reason is significant of a vast variety of complex processes of thought and action,—that it is significant, not of any one definite and uniform development of power or powers, but of a combination of attributes and powers, varying indefinitely and unascertainably, in the nations, the families and the individuals of the human race.

If this be fully and clearly seen and acknowledged, we are on the road for determining how far the brutes possess reason; for the inquiry resolves itself into this,—What powers have they analogous in kind or degree to those possessed by man?—and if there be any peculiar combination of powers in man to which the term reason is or ought to be applied and rigidly confined, what living beings, other than man, have this peculiar combination?

We speak sometimes of the higher and lower functions of reason; and Mr. Atkinson speaks (Zool. 5456) of estimating the "degree or kind of exercise of reason, from its simplest manifestation to its somewhat more complicated operation." But such language does not quite satisfy the exact scientific inquirer. He may wish to feel quite sure that he understands what is the "simplest manifestation" and what the "more complicated operation" of reason.

Has reason its root in sensation, as Locke seems in the main to teach, and to teach, too, though obscurely, even in the passages quoted by Mr. Atkinson? Then all sentient beings have that element in common with man, when they feel, and perceive they live. But is reason something beyond and above sensation? Is it rational to remember and to anticipate, to take measures for the renewal of sensation, whether to ward off evil or secure pleasure? Who will deny to the different races of animated being, in different degrees, these elements of reason?—who will say they have not memory, anticipation, and a power of provision? Is it an element of reason to communicate sensations and ideas by signs? Who will deny to animals, in degrees, the limits of which cannot be accurately fixed, the power of communicating emotions and intentions? But is reason something higher still, something beyond the power of communicating ideas, emotions and intentions by articulate sounds, or marks and signs previously agreed upon, and therefore understood? Is it the power of tracing effects to their causes, of classifying and arranging the results of observation, of recognizing and obeying *law*? Here we approach to some of the highest attributes, we touch the nobler functions and higher attainments of the human intellect in its more perfect forms; and then we may ask, with triumph, who brings evidence for, or supposes the existence of, these functions and these attainments in other tribes of animated beings, curious and wonderful as their peculiar or characteristic qualities and powers occasionally may be.

On the whole, may we not conclude that it is rather by the degree and the variety and the perfection of his powers, exercised in combination with one another, that man is distinguished from other denizens of the globe on which he walks, than by any one kind of quality or specific attribute absolutely peculiar. And, as Horne Tooke was wont to say, as I have heard, that no definition could be given of man which would suffice to distinguish him from other animals, on account of the immense variety of qualities or parts, both as regards bodily frame, vital function and mental powers, which he had in common with the creatures around him, the term *man* standing sometimes for the whole and sometimes for portions, more or less important, of these qualities and powers, or parts and degrees thereof; so, with regard to the term *reason*, I conceive no adequate idea can be formed or account given of it, because it includes such a great variety of processes of thought, and has itself so many attributes, some of which may be found in and may be characteristic of the higher orders of animals, though other processes and attributes may not, at least in any marked degree, or in anything like the perfection of their development in man.

In conclusion, permit me to suggest that Mr. Atkinson seems to have embarrassed his subject, or hindered arrival at a satisfactory conclusion, by his references to Locke. Mr. Atkinson's quotations are taken from the 9th, 10th and 11th chapters of the second book of Locke's 'Essay,' one of its least valuable portions. In these Locke laid himself open to the successful attack of Bishop Berkeley, who exposed Locke's weakness on the subject of abstract and universal and general ideas. What, for example, can be more unsatisfactory or less precise than Locke's intimation that "beasts compare not their ideas further than some *sensible circumstances annexed to the objects themselves*"?

The truth is that Locke wrote his great and invaluable work at distant intervals. It was often laid by and often resumed. When he wrote this part of his 'Essay' the vast importance of words in reasoning, and the necessity of definition, the matter upon which he touched in the third and fourth books, had scarcely dawned upon his mind; and he was not careful to correct what he says of perception, comparison, retention, abstraction, composition, &c., in one place speaking of them as distinct faculties of the mind, by his clearer thoughts and better expressions in another place. My habitual veneration for the name of Locke leads me often to wish that it were less difficult than it is to separate the ore from the dross, the wheat from the chaff, in his great work; the more so as the ore is the gold of Ophir, and the wheat the element of the bread of life.

EDWARD TAGART.

Wildwood, Hampstead,
April 2, 1857.

Addendum.

Should you think the observations on Reason and Instinct which were forwarded to you after the appearance of Mr. Atkinson's first paper worthy of any attention, perhaps you will permit a few additions to them, now that I have had the pleasure of reading Mr. Atkinson's concluding paper. I do not wish to controvert any of the opinions which your correspondent has expressed, or the conclusions at which he arrives, but rather to submit to his consideration, and to that of other readers of the 'Zoologist' who may be disposed to enter into such inquiries, the possibility, and the desirableness, if possible, of giving to the discussion a more exact and scientific form than it usually assumes. Our language on the phenomena of the mind,—on all which is included under the term "mental action," whether we have reference to the human mind or to the humbler races,—is for the most part too vague and indefinite to permit of any logical argument or scientific conclusion, owing to the extreme complexity and subtlety of the matter under discussion. We are perpetually in danger of losing sight of the simple, unquestionable facts of Nature, which alone are of value in coming at any safe general principle, because we are carried away by words which we imagine to be clear and expressive, and with which we are satisfied because they are familiar. But the words which are good enough for the purpose of common intercourse are not adequate to the needs and uses of the exact scientific inquirer.

It is rather as a logician and metaphysician than as a naturalist that I venture to address these few lines to you, and far more with a view to modify some of Mr. Atkinson's modes of expression, and thus to aid in the arrival at a sound general conclusion, than to dispute the facts to which he has called attention, or the sentiments which he has enforced. I conceive that the subject, confessedly obscure, may be cleared by placing it in a somewhat different light.

1. Is reason, as the attribute of man, a compound of many elements? We do not come at any clearer or more useful notion of it by speaking of it as "the intellectual essence." For the purpose of the argument, I should mean by reason and the intellectual essence the same thing. I include under these terms the same processes of thought. Is it, then, a compound of several or many elements? Mr. Atkinson implies it is. He speaks of it as comprehending memory, comparison, abstraction, contrivance, calculation; and he intimates that there are "other operations of understanding" (Zool. 5580), which, however, he does not name. Taking those he does name, may we now ask, Do not brutes remember?—do they not compare, distinguish, contrive? If they do, and who will dispute or deny it, it is admitted that they possess some of the elements of reason, and those not the least important to man. The question of the approach of the brutes in reasoning power to man is therefore a question of degree, for testing which we want exact measures. Wanting these measures, we can arrive at no very exact or important general conclusions, no safe rules beyond those of a limited experience and imperfect observation. I understand all that Mr. Atkinson says, and wishes to maintain, to be in harmony with this remark; and he will further agree with the observation that the races of animals, both as individuals and as species, differ from one another in the powers which they possess, and the degree in which powers are acquired or developed, as they differ also from men, and men from one another, by boundaries indistinctly marked, and very difficult to trace and describe.

2. The language in Mr. Atkinson's last paper which seems to me most open to criticism is that which relates to instinct. At one time he speaks of instinct as if it were a known and determinate faculty, or as an ascertained condition of many combined faculties which reason subserves or is in harmony with; at another time he implies that there are many different kinds of instinct. He speaks of the instincts peculiar to man, as if man had some instincts distinct from, yet more or less analogous to, the instincts characteristic of the other animated beings, like ourselves denizens of earth and time. No authority, no custom reconciles me to such language. It may be used by Sir B. Brodie in his recent 'Physiological Researches,' by Mr. Couch, by Dr.

Prichard, by Dr. Butler, and, because so used, may be respectfully heard. But it does not satisfy. We may still ask what is meant by it. Say, if you please, with Sir B. Brodie, that "the desire to live in society is as much an instinct in man as it is in the bee, the ant, the beaver, or the prairie dog;" but it is no more so. It is no more an instinct than any other desire, than all desire, the desire to sit, lie or sleep when weary, to eat when hungry, to drink when thirsty, to have more clothes or get nearer fire when cold; it is no more than saying that man is the creature of desire, or subject to desire, like all other animated beings. Desire it is which puts him into action, and, in common with the humblest creatures around him, he continues through life subject to its influence. Is there anything special in the desire to live in society to make it more than other desires worthy the name of an instinct?

I object to the application of the term instinct in any sense to man, whether to the parts, functions and attributes of his bodily frame, or to the emotions of his moral nature (dependent as I believe these to be on the state of society in which he is found and the education to which he has been subjected, at least in all the most important and considerable respects deserving philosophical attention), or to the powers and attributes of his mind in humble or lofty development. I know of no instincts, properly speaking, *peculiar* to man, peculiar in the correct sense of the word, that is, not common with him to any other animated beings. You may call all the functions of his animal frame, all the emotions and powers natural to him in a given position or in a certain stage of development, instinctive, if you please so to call them. But it is not instructive; may I not say it is injudicious and confusing? Surely it is the peculiarity of man not only to be conscious of the ends which he pursues, and of the methods by which he attains them, but to be able to give an account of these ends and methods, so as to instruct his fellows. He not only knows and remembers how the various objects and materials of nature affect him, he is not only aware and conscious of the processes of thought and contrivances of action which are involved in whatever he does or attains, but he can describe what he feels and knows, and, so far as his acts and plans are voluntary, at will or pleasure he can repeat them. Above all, he communicates with his fellows by fixed and agreed signs. In constructing a house, a ship, a railroad, a Nasmyth hammer, in all that is most important and peculiar to him, he proceeds, therefore, not by instinct, which is, according to my view, an impulse or endowment of nature, often called blind, and of which we can give no further account; but by reason, by which I understand, in this present usage, all the lessons and mastery of experience, all the processes of thought of which he has distinct apprehension and can give distinct account. In all that is most important and peculiar to him he proceeds, for instance in making and reading a book, in a manner which would be impossible without an experience, without an instruction, such as that with which we are familiar, and of which account can be given more or less exact and philosophical. With regard to animals it is not so: we say they proceed by instinct because we know not what or how far they observe, or anticipate, remember and infer. If the bee, the ant, the bird or beaver, in the processes peculiar to the individuals and to the races, learn anything or much by experience, we are ignorant of it. To what extent they instruct one another or communicate with one another, we are for the most part utterly ignorant, notwithstanding some very curious and rare phenomena, which excite attention and interest only or very much by their exceptional and unexpected character.

I shall only observe, further, that it is a very great and increasing fault in the loose popular writings of the day that emotions and ideas, powers and tendencies characteristic of man, as we are familiar with him in a state of society now called civilized, and certainly much advanced when compared with the condition of savages such as the Bushmen, are constantly spoken of as *instinctive*, merely because they are *common*. It is forgotten that such emotions and ideas, powers and tendencies are only characteristic of and peculiar to the civilized, educated and formed man, restrained by law and assisted by the arts and habits of a particular condition of social life.

Again, the functions of the bodily frame which are not subject to the will, and the many wants and feelings growing out of that frame, and even the endowments of the mind, such as memory and anticipation, are frequently, but loosely, called instinctive, because they are natural, and they are, like all that belongs to man, the general gift of that Providence by whom we and all animated creatures are wonderfully made. We breathe, we digest, we see, we hear, we sleep, feed, move and cry, it may be said *instinctively*, meaning naturally, without knowing and considering how. The beasts do the same. But when we would speak of what is peculiar to man, as distinguishing him from other animals, it is a kind of careless and injudicious speech, well enough for those who are not anxious to learn and know, to weigh and consider; not enough for the cautious inquirer. When the anatomist and physiologist examines more closely the lungs and the stomach, by that examination he discovers much of which he was before ignorant, and of which the superficial and uninstructed remain ignorant; so the logician and mental philosopher, by the investigation and analysis of language and the complex laws of thought, discovers niceties of meaning and shades of apprehension quite unknown to the less thoughtful and less observant.

If I were in amicable conference with Mr. Atkinson on this interesting but somewhat difficult subject, I should venture one or two other minor criticisms on his modes of expression; but they would not affect the truth or value of any sentiment which he wishes to establish, and therefore it is not worth while to trouble the readers of the 'Zoologist' with them.

I hope these remarks, crude and imperfect as they must appear, will be received, not as designed to controvert any of your respected correspondent's main positions, but as an humble contribution to clear thought and useful knowledge, on a subject less physical than metaphysical, as the Aristotelians have taught us to express ourselves.

EDWARD TAGART.

Wildwood, Hampstead,
July, 1857.

Notes and Remarks on a few of the Birds of Southern India.

By CAPTAIN HENRY W. HADFIELD.

> "Que de charmes, que d'idées douces, agréables, nous présente l'Histoire Naturelle! Que d'objets variés, interessans! Quelle source inépuisable d'observation, de recherches, et d'instruction pour celui qui se sent un gout decidé pour cette vaste Science."—DAUDIN.

ALTHOUGH I do not anticipate that the observations and remarks I may now, or hereafter, be able to make on some few of the birds of the Carnatic can prove very interesting to the professed or more scientific ornithologist, still I am induced to offer them for publication in the 'Zoologist,' trusting that sufficient may be gleaned from them to make them acceptable to the general reader.

Vulture (*Vultur fulvus*, Gmel.). When out deer-stalking,—which I generally followed by dismounting from my pony, and leading it by the bridle, concealing myself behind it, and keeping pace, as much as possible, with its front legs,—having observed a herd of antelopes on a distant plain, I sent my horse-keeper with the pony to make a circuit, with a view to driving them, if possible, within shot, as they appeared much too wild and wary to be approached in the usual manner, and as there was not the least cover of any kind or inequality in the surface of the ground, there was nothing for it but to throw myself flat down, and wait patiently the result of my stratagem. As I lay perfectly motionless the vultures that had hitherto been eyeing me from a vast height began gradually to descend, contracting their circular sweeps, having apparently satisfied themselves, after passing me in review much in the same manner as I had just done with the deer, that I was fair game, and as we were both intent on catering for our suppers, this was all well enough; but still there was something rather disagreeable about it, and when first one and then another had alighted within a few yards of me, and still seemed inclined for a closer inspection of the apparently inanimate body, whether fish, flesh or fowl, they appeared all this time to have been puzzling their brains to make out: however, I should soon have undeceived them, and I felt greatly tempted to punish one at least for its audacity, but knowing full well that the loss of all chance of a shot at the deer would undoubtedly have been the consequence, they were allowed, although reluctantly, to soar aloft in quest of other and less dangerous prey! What the fate of a poor, sick or wounded creature might have been under similar circumstances it is easy to conjecture.

Pondichery Vulture (*Vultur auricularis*, Daud.). Not uncommon in the neighbourhood of Trichinopoly, where I have seen them perched on trees, appearing in the distance like turkeys; indeed, their resemblance to that bird is so great that they might easily be mistaken for it by the novice. I found them shy and difficult of approach.

Kite (*Falco milvus*). The kite is a very common bird in India, so much so, indeed, that I have frequently seen the vessels at anchor in the Madras roads surrounded by them; they are neither so troublesome nor so familiar as the crow, but their audacity is even greater, which the following incident will serve to exemplify; although I did not witness it I was one of the sufferers by the occurrence, the truth of which I have no reason to doubt, though it may appear somewhat marvellous to those who are only acquainted with the European kite:—When seated at the dinner-table, in readiness for the second course, the excited servants rushed in to inform the company that a thievish and hungry kite had, while one of them was bearing a joint of meat from the cook-house (which is generally a detached building in the East), made a pounce at the savoury morsel, and succeeded in carrying it off without let or hindrance.

Carrion Crow (*Corvus corone*). Those who may only have seen the European crow, which is a wary bird, can have no conception of what a bold, impudent, noisy and intrusive creature the common Indian crow is; in fact, it is a complete nuisance in the large towns and garrisons. They find their way into the houses, where they perch on the chairs and tables, and are no sooner driven out of one window than they find their way in at another. On one occasion, when I was on the main guard at Trichonopoly, a crow flew on to the breakfast-table, and before it could be dislodged coolly proceeded to regale itself on the butter, having, in the first place, knocked off the top of the butter-cup: they also peck at the loaves, and endeavour to carry them off.

King Crow (*Gracula religiosa?*). Common in India, of the colour and size of the blackbird, although it may appear somewhat larger on account of its long forked tail, which is in some degree lyre-shaped. It is one of the few song-birds met with in the East, and as its notes are heard before any other, and is a sure and never-failing precursor of the dawn, as such, though neither powerful nor melodious, has a peculiar charm about it when heard in the deep solitude of the forest, ere the crowing of the jungle-cock or the shrill cry of the pea-fowl has resounded through the woods. It is also remarkable on account of its restless and pugnacious nature and instinctive animosity to the common crow, which it invariably attacks, although some three or four times its size. Shrike-like it takes up a position on a conspicuous twig or branch, ever ready for attack,—ever on the offensive,—never even allowing a crow to approach, much less intrude upon, its domain without its being immediately assaulted and persecuted; in fact, the little king crow is the greatest of tyrants, and it is amusing to witness the vain attempts of the poor crow to effect its escape, which it seldom, however, succeeds in till duly punished for its temerity, for resistance is rarely attempted, its whole powers of wing being exerted in vain endeavours to avoid or escape its dreaded and relentless foe.

Pea Fowl (*Pavo cristatus*, Lin.). Common enough in moist jungles in India, particularly in the mountainous districts, where their shrill piercing cry may be heard far and wide, and the sound is somewhat startling to the nerves of the novice or young sportsman, in the midst of the vast, dense and solitary jungle, where all else is buried in silence. Its vigilance, shyness and timidity are extreme, so that it can only be approached with the greatest caution: when feeding at early dawn I have found the best time for shooting them, and I know nothing much more exciting than seeing several of these elegant birds feeding together in a glade or on an open patch on the skirts of the jungle, for they seldom move far from cover, to which they retreat at the least noise or appearance of danger. The male birds, in their wild state, are still more magnificent than the tame ones, and are much prized by the sportsman, although their flesh is somewhat dry and insipid, and much inferior to that of most other kinds of game.

Sand Ptarmigan or Rock Pigeon of Southern India (*Lagopus arenaria; Ganya unibanda* of Temminck; Sand Grouse of Latham). From the description given in Temminck's 'Manuel d'Ornithologie,' I believe it to be the species commonly known in Southern India as the rock pigeon, but which I have, for want of a better, named Lagopus arenaria, considering that, both in its form and habits, it bears a far greater resemblance to the ptarmigan than to the grouse. Those shot by me have not only varied much in plumage, but I have rarely found two exactly alike. It is a handsome bird, its elongated form giving it a remarkably elegant appearance when seen on the wing: the legs are short and feathered, as well as the toes; reddish brown, black and light yellow, are I think the prevailing or dominant colours, blended with cinereous, ferruginous, or pale chestnut, harmonizing well with the arid, sandy and rocky character of the desert-like tracts where alone they are to be met with, and where they lie crouched and concealed amidst the chaotic masses of granite, as well as rocks and stones with which these vast and boundless plains are strewn and dotted. Many of the rocks are of gigantic size, giving to the scenery a peculiarly grand and impressive aspect, and the deep solitude that ever reigns is so complete that the sudden apparition of a human form would be startling. No wonder, then, if the whirring, whistling sound of the rising pack should unnerve the hand of the novice, seeing that the sport is necessarily followed without the aid of dogs, so that one never knows when or where to expect them, not unfrequently rising behind the gunner, who has then to wheel round and take a snap or chance shot, a second being seldom obtainable. Strange to say, this diminutive grouse or ptarmigan is held in no estimation by the Indian sportsman—why or wherefore I never could discover, but think it may partly have arisen from its being most unaccountably and absurdly misnamed pigeon, for we know there is after all much in a name. The flesh is dark and game-like, with streaks or layers of white, but, like most other game in the East, is insipid, in consequence of the heat rendering it impossible to keep it more than a few hours. Temminck, in describing the Ganga remarks:—"Ils parcourent d'un vol soutenu les vastes solitudes." Unlike the grouse! Again, "Vit et niche à terre parmi les pierres"—"pond quatre ou cinq œufs." Unlike the grouse!

Redlegged Partridge (*Tetrao rufus*, Lin.). The only species found in the southern parts of the peninsula of India, where it perches on trees, from which elevated post its shrill note or call at early dawn may be heard far and wide, and if cautiously approached may be seen among the branches. They are seldom to be met with in coveys, but are generally found singly or in pairs scattered about in the patches of stunted jungle, from which they are sprung with difficulty, for they seldom take wing, trusting instinctively to their legs for safety, and their course is rapid. To show their preference for this mode of progression, I will relate an incident that I witnessed when detached at Ramnad, near Cape Comorin: between that place and the coast there are extensive sandy plains dotted here and there with patches of prickly pear (Aloes) as well as with stunted date and other jungle. Two shikarries, or native hunters, brought me some partridges which they had just captured; having nothing else to do, or rather no better sport, I made them let out the birds one by one to be shot at, for my missing some was fortunate, as it not only enabled me to get more shots, but to witness the great dexterity exhibited by these native sportsmen in recapturing the game, which they did in the following surprising manner:—So soon as I had discharged my gun, and they perceived that the partridge had escaped they commenced running at full speed, following in the direction it had taken, keeping the bird in view until it had either alighted or got into cover; on reaching the point where it was lost sight of, they examined the ground with great care, and were not long in discovering in the fine sand the foot-marks of the unfortunate fugitive, soon to be recaptured and exposed to new dangers. Their manner of proceeding was thus:—When they had succeeded in tracing the bird to a bush one man extended his net before it, and the other, running quickly round to the opposite side, commenced beating it,—the poor, scared partridge of course flying into the net, thus falling an easy prey to these skilled and most indefatigable fowlers.

Coromandel Quail (*Tetrao coturnix*, Lin.). An author who has written a good deal, and edited still more, about birds, informs us that the Indian quail is found to frequent the cultivated districts and cornfields; but having passed some years in the South of India all I can say is that my own experience has proved the reverse of this to be the case. Being unable to indulge much in snipe-shooting I used to follow the quails, a very common bird indeed in that part of the country, consequently had good opportunities of learning something of its habits. I will not, however, undertake to say that quails are not occasionally to be found in the cultivated fields, but their habitat is the stunted jungle. What their usual food may be, not having dissected any, I am of course not prepared to say, but think I should not be far wrong in conjecturing that it is grass and other seeds, berries, ants' eggs, Crustacea, and such like, all found in abundance in these localities. So common are these birds in the situations described that I have seen some twenty or thirty driven out of bushes only a few yards in circumference, reminding one of a flock of sparrows. Although they greatly resemble the common European quail individually they vary much in plumage, and in size they are much inferior, I should say fully a third. Their flesh is dry and insipid, but could it be kept even for a day or two it might prove more savoury. The quails found in the northern districts are not only much larger, but their plumage is darker and far more beautiful.

Madras or Painted Snipe (*Rhynchæa capensis*, Tem.). Is common in the South of India in some districts; I fell in with a great number in the paddy-fields, only a few marches from Madras, on the Trichinopoly road. I found them less wild than the common snipe, so that when missed there was no great difficulty in getting a second shot. The plumage is not only darker but far more beautiful and glossy than that of the latter, but their flesh is considered much inferior. Cuvier, in describing and comparing it, says, "Ils joignent des couleurs plus vives et se font surtout remarquer par des taches œillées sur leurs pennes des ailes, et de la queue." Another author describes it as having a pale reddish bill; upper parts mixed with tawny and blackish; a brown stripe down the middle of the crown and behind each eye; two black-brown bands on the back; throat and fore part of the neck tawny, spotted with black; rest of the under parts white, except a band of black across the breast; quills and tail variegated with black, tawny and gray.

HENRY W. HADFIELD.

Tunbridge, July, 1857.

(To be continued).

Occurrence of the Kite (Falco milvus) *near Banff.*—A most splendid male specimen of this rare bird was shot, a short time ago, at a place called Eden, the seat of G. E. Grant Duff, Esq., about four miles from here. The bird is truly a noble one, being in first-rate plumage, in fact as fine a one as the longing, not to say covetous, eye of any ornithologist ever rested on, although I myself, to tell the truth, envied the animal as soon as I saw it. I may add that, through the kindness of Mr. Duff, who has ever proved my friend in that way, it now adorns my collection, having been most generously presented to me by that gentleman.—*Thomas Edward; Old Market Place, Banff, June* 2, 1857.

Hawfinches breeding in Suffolk.—Having communicated (Zool. 4946) what I believe to have been the first recorded instance of the hawfinch breeding in Norfolk, it may not be uninteresting to add the following notices of its doing so, not once, but often, in the adjoining county of Suffolk. In the 'Bury Post' of last week a paragraph sent by an ornithological friend, appeared as follows:—"A nest of the hawfinch has been taken in Ickworth Park containing five young ones." This statement, as "a curious fact," elicited, the next week, some further information from another correspondent, who says:—"Some twenty-four or twenty-five years since, I saw, in the garden of Great Finborough Hall, a nest of young ones; and they had reared some in the same garden at least one year preceding. In the following June, Mr. Nicholls (the then gardener, and a most enthusiastic naturalist) wrote to invite me to pay him a visit; and in his note he says, 'We have two nests of the hawfinch in the kitchen-garden at this time, and one is on the same tree you saw them on last year.' It is but a few days since that I saw a nest full of young ones in a garden in the neighbourhood of Bury. It is perhaps rather singular that in all cases the birds selected apple trees as their place of abode. In addition to these, we may add that last year a nest of young were reared in the pleasure-grounds of either Ampton or Livermere, at the moment I forget which, but I believe the former place." From these and other instances that have of late years been recorded of hawfinches nesting in this country, there can be no doubt that they do so regularly and in some numbers, although, until their habits and resorts were better known, their excessive shyness and rapid movements left ample room for doubt.—*H. Stevenson; Norwich, June* 18, 1857.

Inquiry respecting the Plumage of the Common Dipper.—Can any of your north-country correspondents, acquainted with the haunts of the water ouzel, inform me if the chestnut-colour on the breast of some specimens is merely the summer plumage of the species, or the plumage assumed permanently by the adult birds? Two years since, I received a pair of these birds, shot during the summer in Scotland, which had the lower part of the breast bright chestnut, shading off into gray towards the vent; but out of four specimens killed in this county in autumn, even as late as November, when the few stragglers that visit Norfolk are chiefly met with, I have found none exhibiting the slightest trace of chestnut, but, instead, the same parts are invariably grayish black. Mr. Yarrell, I find, speaks of no difference in the summer and winter plumage, and states that males and females are alike in plumage; I therefore want to ascertain if the birds that visit us are not in immature plumage, which might assume the chestnut tints in the following spring. The young bird in its first plumage differs from either of the specimens alluded to.—*Id.*

Note on the Migration of the Swallow Tribe.—It is, I think, quite impossible that the vast flights of swallows that in their migration pass annually to the eastward can either have been bred in or belonged to this or the neighbouring counties; it is far more probable that we have the accumulated thousands not only from the western counties, but also from Wales and the South of Ireland; nor do I see anything surprising in this, or that it should be considered a wild theory; for, it having pleased Providence to endow them with such wonderful instinct, what more natural that in taking their departure they should be guided by it, so that, instead of directing their flight at once to the southward, which would expose them to a tenfold risk of perishing by the way, they should shape their course to the eastward till the narrowest part of the Channel had been reached, where their crossing would be unattended with risk either from adverse winds or tempests. Stray birds are generally to be met with in greater or lesser numbers late in the season; but those shot for inspection I have invariably found to be young birds, their plumage being speckled with white, giving them a gray appearance on the back and head; and the bills were tinged with yellow at the base. Although I will not take upon me to say decidedly how it happens that so many swallows are annually left, in a helpless and immature state, to shift for themselves, I am inclined to believe it is somewhat after this manner. When swallows construct their nests in exposed spots, which we know to be sometimes the case, they are liable to be injured by the rain, or possibly blown down; and when this happens late in the season, even if they should succeed by renewed or redoubled exertions in getting their nests repaired or rebuilt, there would still remain the business of incubation to be gone through again, which would necessarily throw them back a fortnight or more. There is also the chance of one of the old birds being killed, in which case the survivor would have to look out for another helpmate; so that much time might be lost, as there would probably at that season be a scarcity of swallows of a suitable age unpaired; moreover, there would be the house to replaster and refurnish, eggs to be laid and incubated, and brood to be reared.—*Henry W. Hadfield; Ventnor, Isle of Wight*, 1856.

Nidification of the House Sparrow (Fringilla domestica).—June 11, 1857.—In walking round the garden at about six o'clock in the evening, I perceived on the lawn what appeared to be a ball of hay or straw, but which on a nearer approach proved to be the nest of a house sparrow. Lying near it, but quite dead, was a young bird some seven or eight days old. On taking up the nest and inserting my finger, I felt some young ones within, apparently dead, but on a closer inspection found that one out of the two it contained still showed symptoms of vitality, although well nigh as cold as its fellow-nestling. But before proceeding with my description it may be necessary to account for its strange and rather mysterious appearance on the grass-plot. Although the weather had been stormy and unsettled for some days, on my retiring to rest about midnight it was calm; but I am informed that towards morning there was a sudden and violent squall. I am particular in noticing this circumstance to show the great length of time that this young bird must necessarily have passed without food; and when we consider that probably it had not been fed since eight o'clock on the previous evening, which I have ascertained from observation to be about the hour the sparrow ceases to feed its young, it most probably had gone without food for some twenty-two hours; at the same time not only exposed to the cold night air, but still further chilled by its close proximity to its dead companion. The bird found dead on the ground had probably been killed by the fall of some forty or fifty feet, as it could scarcely have crept so far from the nest. On taking the poor half-starved bird from the nest, the warmth of my hand seemed to revive it, so much so that I was induced to try it with a worm, which, after two or three unsuccessful attempts, it managed to gulp down, and before night had sufficiently recovered to admit of its being regularly fed, and replaced in the nest in a warm room, where it passed the night. In the morning it was found to be not only still alive, but strong and well, crying out most lustily for its breakfast. It is, I think, worthy of remark that so young a bird should, under the adverse circumstances detailed, have survived; probably the young of few other species could have done so. It would appear from this nest not having been blown down, also from what has been elsewhere stated on the subject, that there is much risk and uncertainty attending their building in trees, particularly in exposed situations, so much so that one would at first be inclined to set the sparrow down as wanting both in "reason and instinct." But when one reflects what a persecuted bird the poor house sparrow is, and how frequently its nest is taken and the young destroyed, both by man and beast, when placed either in holes about houses and other buildings, or in the ivy on the walls, one cannot be greatly surprised at their occasionally, at least, preferring to trust there progeny to the vicissitudes of the elements rather than to the mercy of man, or their still more deadly enemy, Grimalkin; but strange, though true, it is that cats do not climb trees in quest of nestlings, at least I never observed them doing so; and although there are at the present moment several sparrows' nests in the garden I have never remarked cats, although they are frequently to be seen prowling about, even attempting to get at them, though the chirping of the young birds cannot, I should think, fail to be heard by them. I will now endeavour to describe the nest, which is both bulky and inelegant. It is of an oval form, convex above, concave beneath, in circumference lengthwise 24¾ inches, breadthwise 20, depth 6. Internally it is oval, and 3½ inches in width in the centre. The bottom of the nest is indented by the impression of the branch on which it rested: upper part slightly projecting over the opening, which is of a circular form, placed at the large end, and in size little more than sufficient to admit of the free ingress and egress of the old birds. The concavity is made to slope downwards at once from the entrance, from which the young bird seems to shrink with instinctive dread, for I find it a difficult matter to draw it up, as it clings with the greatest tenacity to the lower part and sides of the nest, and when released turning itself immediately round and retreating to the bottom. The outside of the nest is composed principally of hay, grass, and a little straw, intermixed with roots of different kinds, as well as twigs, rose-leaves matted together, a long piece of black worsted, bits of red worsted, matting, shavings, tape, bark of tree, two pieces of playing cards, stalks of flowers and plants, buttercup, moss, &c. But the inside is chiefly lined with feathers, wool and paper: of the latter there is a great variety; among the rest a piece of a printed notice of a sermon to be preached in the parish church, scraps of a Latin exercise, bits of newspaper, blue paper, also some of my own handwriting, bits of blue and brown braid, plaid and blue cloth, worsted twist, tissue paper, cotton, thread, rope, swan's-down, flock, horse-hair, dog's or cat's-hair, rags, weeds, strings, rabbit's fur, &c., and a piece of the plan of Sebastopol. June 18.—The gale still continues, although somewhat abated. Another sparrow's-nest was blown down to-day: it contained only one egg entire, but there were several pieces strewn about. This nest is somewhat more elongated than the former one, and is remarkable for the quantity of strings and threads intermixed with the other materials, measuring in the whole about 90 feet; there are also considerably more feathers but less paper than in the old nest. It measures in circumference lengthwise about 29 inches, breadthwise 19, and is 6 inches in depth. A needle having two feet of thread attached to it was found in the nest, which, like the other, is chiefly composed externally of hay, grass, and a little straw, intermixed with roots, sticks, &c. Internally it is lined with a profusion of feathers, paper, cotton, wool, &c. The following are some of the things noticed:—Pieces of green and drab alpaca, white and coloured rags, worsted-twist (one bit 24 inches in length), threads of various length, red tape, strings, boot-lace, flannel, cotton, paper top to reel, silk, horse-hair, twine, moss, weeds, flower-leaves, &c., &c.—*Id.; June* 18, 1857.

Nidification of the Bohemian Waxwing (Bombycilla garrula).—At the March Meeting of the Zoological Society, Dr. Gray, F.R.S., in the chair, a pair of adult waxwings, killed from their nest, a young bird, and two nests and eggs, were sent for exhibition by Mr. John Wolley, jun. The exhibition was accompanied by the following paper, from Mr. Wolley, 'On the Nest and Eggs of the Waxwing:'—"The waxwing, as observed in Lapland, makes a good-sized and substantial nest, but without much indication of advanced art. It is of some depth, and regularly shaped, though built of rather intractable materials. As in those of many other birds in the Arctic forests, the main substance is of the kind of lichen commonly called tree-hair, which hangs so abundantly from the branches of almost every tree. This lichen somewhat resembles a mass of delicate rootlets, or perhaps may be compared to coarse brown wool; but some of it is whitish, and in one nest there is a little of this mixed with the ordinary brown or black. This main substance of the nest is strengthened below by a platform of dead twigs, and higher up towards the interior by a greater or less amount of flowering stalks of grass, and occasionally pieces of Equisetum. It is also interspersed with a little reindeer lichen, perhaps a sprig or two of green moss, and even some pieces of willow cotton. There may also be observed a little of the very fine silvery-looking fibre of grass-leaves, which probably have been reduced to that condition by long soaking in water. In one of the nests examined there were several pen-feathers of small birds as an apology for a lining. Of other nests which are to be found in the same forest it most resembles that of the Siberian jay, but is considerably less than it, which, however, is less securely put together, but has many more feathers and soft materials for a lining. The nest of the waxwing is built on the branch of a tree, not near the bole, and rather, as one of the observers has said, standing up from the branch like a fieldfare's or other thrush's nest, than supported by twigs touching it at the sides, as the nests of many birds are supported. Of six nests four were in small spruces, one in a good-sized Scotch fir, and one in a birch, all placed at a height of from six to twelve feet above the ground. The tree in several instances was unhealthy, thin and scraggy in its branches, to which there hung a good deal of hair lichen; and the nest seems generally much exposed, though, from its resemblance to the lichen hanging near, it might escape the eye. The nests found were in parts of the forest considerably open, once or twice on the side of low hills near a river, or with an undergrowth of dwarf swamp-loving shrubs. But at present we have scarcely enough examples to show that there is a preference for any particular kind of ground. Five seems to be the ordinary number of eggs; in one nest only there were as many as six. They have a pale salmon-coloured ground, upon which are distributed, pretty equally, good-sized purple spots, some with more and some with less deep colour, but nearly all of them having a shade or penumbra, such as is common especially in the eggs of the chaffinch. The only very marked variety I have yet seen has short streaks, and much smaller and more numerous spots than usual, of which markings a considerable proportion are of a pale yellowish brown. The eggs may be about an inch in length, but hardly enough have been obtained to determine the average dimensions. Marked differences in size in the eggs of the same nest have not yet been observed; but, as with other birds, we find that one nest may have all its eggs considerably larger than those of another nest. In the backward and cold spring of 1856 waxwings had their full complement of eggs about the 12th of June. The writer abstains for the present from offering any remarks on the distribution of this bird in the breeding season, hoping that upon this subject, as upon the habits of the waxwing in the summer, he may hereafter have some more complete observations to communicate. A young bird caught on the 5th of August, as it fluttered from the nest, had a general resemblance to the adult, though all the colours were more dull. The wax-like ends to the wing-feathers, the yellow tip to the tail, the black patch between the eye and the beak, are all there, whilst the rich mahogany of the under tail-coverts is of a quieter brown; the blooming vinous colour of the head and back has not yet emerged from a homely neutral, and the crest is but just indicated by the longish feathers of the crown. The most marked difference between the adult and young is in the throat and under surface generally. There is at present scarcely a trace of the deep black patch of the chin, and the delicate tint of the general under surface of the adult is replaced by mottled neutral and white. This, upon examination, is found to owe its appearance to those longer webs which, arriving towards the root of each feather, extend as far outwards as the webs which arise nearer its tip, being very pale or white, and thus relieving, on both sides, the last-mentioned darker webs. —*Muoniovara, February* 2, 1857."

Swallows.—These pretty and generally welcomed harbingers of spring and summer frequently cause great nuisances by building their nests in the corners of windows; and the dirt thrown out of the nest when occupied by young ones, as well as the constant twittering and noise they and their parents make during the breeding season, often becomes very annoying to the inmates of the house. The result usually is that the too zealous and officious housemaid, in remorseless haste, with the end of her broom knocks down the whole fabric, regardless whether it contains eggs or young ones, and the doomed nest is at once demolished. Thus all the labour and care bestowed upon its construction, and the devoted attachment of the parent birds to bring up their young, end but in sorrow and disappointment; and this perhaps takes place again and again during the summer. The poor swallows, persevering to the last, either lose all their time in vainly endeavouring to repair the injury, or are driven at length to seek some other more secure spot in which to carry out their purpose; but this they seldom do until the season has become so far advanced that the young ones cannot be brought up, and obtain sufficient strength to be able to undertake their long migratory journey to a warmer climate, before the period has arrived for the other swallows to do so; and consequently these late-hatched birds are left behind, to die of hunger and cold; for it is seldom the parent birds, notwithstanding all their strong affection for their young ones, will remain if the failure of food and the coldness of autumn has once begun to be felt, so as to induce the rest of the swallows to congregate and quit their summer houses. Any plan, therefore, which can be suggested as likely to prevent this sad destruction of the poor swallow's domiciles, and thereby prevent their building in places where, to use a sporting phrase, they are sure "to come to grief," will, I trust, be received with favour, and adopted by all those who wish well to this most harmless and interesting visitor, whose confidence in man's protection but too often leads to its own destruction, and defeats all its fond hopes and zealous care in stirving to rear its helpless progeny. The method I have found to answer most fully is very simple in itself, and, as prevention of an evil is better than its cure, it will also save much trouble in the end, instead of leaving the poor birds to begin their nests anew, and then having to knock them down as soon as such is perceived to be the case. Last year, having had all the outside wood-work and window-sills of the house from whence this is written fresh painted, and which, being of considerable size, contains more than thirty windows, in front, on the sides and in the corners of which the swallows were before always accustomed to build, causing so much dirt and annoyance that the nests were obliged to be removed; and this had to be done from time to time, every succeeding summer, for several months together, as the poor birds still persevered in rebuilding as often as a former nest was destroyed, and no other remedy having been applied to prevent their doing so; but in the summer of the year when the house was so painted not a single swallow out of all the numbers which were seen about attempted to build as formerly in the corners of the windows, or elsewhere where the repainting had taken place. As the smell of the paint had so effectually prevented this occurring, I thought that in the present year the same result might ensue if I took the precaution of putting in the upper corners of each window-sill a small portion of paint, or some similar substance which would tend to prevent the swallows building there as before. As soon, therefore, as I perceived the swallows had commenced building in those places, I had the incipient nests removed, and a small spot of tar, of about the size of half-a-crown, put with a brush in the corners of the window-sills. Although this has now been done for more than two months, and numbers of swallows are constantly to be seen flying round the house and about in various directions, not one has since ventured to rebuild its nest in any of the places above mentioned. And, to show the efficacy of the plan, I may mention that a short distance off, at the stables and outbuildings belonging to the house, where no tar has been used, there are now numerous nests built, many containing young ones in them, besides those which have already flown this season. Thus I feel satisfied that this simple process will effectually prevent swallows and martins* from attaching their "procreant cradles" to any house so as to cause the nuisance so often complained of, and almost every place to which swallows resort to build their "pendant beds" may be reached by means of a common paint-brush fastened to the end of a stick of a few feet in length, and the tar or paint be thus easily applied. When we consider the long distance these pretty birds travel to visit us, their perfect harmlessness in all other respects, their utility in destroying superabundant insects, and the pleasure their cheerful flight and rapid evolutions afford to every beholder, as well as the confiding nature of this social bird,—when all these claims on our compassion are thought of, I cannot but hope the above plan, which so esialy prevents the evil complained of, will be adopted, and thus spare the wanton destruction of so many innocent lives, given by Him who is the giver of all life.—*W. H. Slaney; Hatton Hall, July* 20, 1857.

"*Hurstpierpoint: a great Curiosity.*—Some persons were one evening taking tea in the Chinese Gardens, when their attention was drawn to a couple of tomtits, which boldly entered the little room where they were sitting, and disappeared underneath the table. Their curiosity was aroused, and after a long search they found the birds' nest, containing several young ones, in the table drawer. This drawer was about 18 inches square, yet the poor birds had filled it with moss, and in the middle of it had reared their young family. Mr. Adams, the proprietor of these pleasure grounds, says that forty or fifty people had taken tea on that table during the three weeks that the nest must have been there, and had not discovered it; and that the table had been moved to the lawn and back several times, yet the parent birds did not desert it. The birds found an entrance to the drawer through a hole in the bottom, and through this hole they had carried all the moss found in the drawer." — *From the Sussex Express, June 6*, 1857.—*Communicated by the Rev. Arthur Hussey.*

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* Does not the writer refer *exclusively* to *martins*?—*E. N.*

The Shoveller (Anas clypeata) *breeding in Dorsetshire.* — I have great pleasure in recording this bird as having bred in the county of Dorset. Some few weeks since, when trout-fishing with Mr. Williams on his manor at Ilsington, we disturbed, some way from us, a bird, which the keeper informed me was a wigeon. Mr. Williams also informed me that his keeper had found the nest, and had brought him two of the eggs (leaving the rest to be hatched), and that he had placed them in the Dorset County Museum. The disturbed bird circled round us, at a great altitude, for at least a quarter of an hour, and whistled occasionally the same notes as the wigeon, which, added to the smallness of the bird and the quantity of white in the plumage, led me to believe that it was a wigeon, and so I marked it in my note-book, but with a query appended to it. I always use great circumspection in making use of gamekeepers' information respecting species; but my own observations in this case induced me to believe that he was right, and that it was in fact a wigeon. This bird was flushed several times during the day, and each time its flight was similar. Some way further down, and in a bend of the river, we noticed the female bird with a brood of young; but we were so far off that I could not identify the species. On the 25th of June my friend Mr. Williams, who had been " flapper shooting," kindly sent me, amongst other wild fowl, a wigeon. On examination this proved to be a female shoveller, and I have no doubt whatever but that, instead of being wigeons, they were shovellers that he and I saw on a previous occasion. Any keeper in this part of Dorset who has a river and water-meadows in his manor will tell you that both wigeon and teal breed with him. This only shows how very careful we should be in satisfying ourselves before we admit a species into the Fauna of a county, or, in fact, of a country. In obtaining materials for my 'Fauna of the County of Dorset' I have met with instances where a very different bird was introduced from the one intended. In one list I found the hooded merganser named as having been obtained in Dorset. As this was the only occurrence I had heard of, I wrote to the compiler (one of our first entomologists) respecting it. When he next came to Weymouth I saw him; he kindly gave me all the information in his power, and the result was the proof, beyond all question, that the hooded merganser of his list was only the tufted duck (*Anas fuligula*). Another case occurred to me only this week. In a new Guide-Book of Weymouth and Portland, now publishing, the proprietor had applied to a gentleman in this town to give him a list of marine birds. The list was supplied. Happening to call on the publisher, he asked me to revise the list; and this I promised to do, and took it home for that purpose. What was my astonishment to find the first bird found on the cliffs of Dorset was Falco gentilis! The mischief that may accrue to Science from mistakes like these is such that some remedy should be attempted. I think it might be managed if the Linnean and Zoological Societies would take it in hand, and certify of any work that there were no gross inaccuracies. It would in time add to the value of the work, and would obtain favour with the public, and therefore with the author.—*William Thompson; Weymouth, July* 5, 1857.

Note on the Little Auk (Uria alle) *appearing on the Norfolk Coast in Summer.*—I have now in my possession a specimen of this bird, with the perfect black throat of the summer plumage, which was shot at Wells, on this coast, about the 26th of May. This bird, which was shown me in the flesh, was shot from the beach whilst skimming rapidly over the waves close in shore, and was covered with sand when brought to me. Mr. Yarrell says of this species, "It is only a winter visitor to the British Islands, and is more frequently met with among those of Orkney and Shetland than further South." It is also known to frequent and breed in such high northern regions that the occurrence of this single specimen on our coast at such a time is not perhaps unworthy of record. Scarcely an autumn or winter passes without a few being taken in various parts of Norfolk; but these may be reckoned rather as accidental than regular visitants, driven from their proper course by storms; and thus not only drifted on to our coasts, but carried sometimes for miles inland, till they fall exhausted in the streets of our towns and villages. During the last winter, after the high winds which prevailed at different times, many of these birds were picked up, and one was taken alive in a yard in the centre of this city. All these have of course the white or grayish white throat peculiar to the winter season; but I am not aware of any previous instance of the little auk visiting us in summer.—*H. Stevenson; Norwich, July* 6, 1857.

The Eye of the Carp turns on its Axis.—In watching a small carp seeking food alternately at the surface and the bottom of my fresh-water aquarium, I remarked the eye turns upon its axis, and does not partake of the inclination of the body. The same movement may be seen in the human eye by inclining the head towards either shoulder before a looking-glass. Thus the images of earth and sky fall upon the same portions of the retina in all ordinary positions of the head. May not the reversal of these conditions account in some measure for the effects noticed in viewing a landscape with the head inverted and looking between the legs, effects which are usually imputed to the additional flow of blood to the head?—*George Guyon; June* 15, 1857.

Giant Specimens of Unio tumidus and U. pictorum.—I have met with these Uniones in two ponds in this neighbourhood, situated in the parishes of Fleckney and Wistow, of a size which I believe to be wholly unexampled. Forbes and Hanley write of Unio tumidus, "A fine specimen measured three inches in length, and more than half that in breadth at the widest part;" and of U. pictorum they remark that "a large individual measured full three inches in length, and nearly an inch and a half in breadth." In the following table I give the dimensions and weights of Wistow and Fleckney specimens, and have added those of my finest examples from other localities for the sake of comparison. Number 5 is a dwarf variety of U. tumidus, from the Cherwell, Oxford, where it rarely, if ever, attains a size larger than that of this specimen. The difference between the Uniones of this neighbourhood and others will be seen more remarkably by a comparison of their weights than by that of their measurements. The sum total of the weights of 3, 4, 8 and 9, it will be observed, only exceeds the weight of the specimen of U. pictorum from Fleckney by half a drachm, and falls short of the weight of the Fleckney U. tumidus by twelve and a half drachms! Although those measured are the largest I have as yet found, all the specimens of Unio tumidus and U. pictorum from this neighbourhood are of extraordinary size, and none of my correspondents have ever seen any that can be compared with them.

		Length.	Breadth.	Girth lengthwise.	Girth breadthwise.	Weight.	
		Inches.	Inches.	Inches.	Inches.	Oz.	Dr.
1. Unio tumidus,	Fleckney ………	$4\frac{3}{10}$	$2\frac{1}{5}$	$9\frac{3}{5}$	6	3	2
2. „ „	Wistow…………	$4\frac{1}{5}$	2	$9\frac{1}{5}$	$5\frac{3}{5}$	2	10
3. „ „	Surrey Docks …	$2\frac{9}{10}$	$1\frac{1}{2}$	$6\frac{3}{5}$	$4\frac{1}{10}$		10
4. „ „	New River ……	$2\frac{9}{10}$	$1\frac{3}{5}$	$6\frac{2}{5}$	$3\frac{9}{10}$		$11\frac{1}{2}$
5. „ „	Oxford …………	$2\frac{1}{5}$	$1\frac{1}{5}$	$5\frac{1}{10}$	$3\frac{2}{5}$		6
6. Unio pictorum,	Wistow ………	$4\frac{7}{10}$	$2\frac{1}{5}$	$10\frac{3}{10}$	$5\frac{4}{5}$	2	6
7. „ „	Fleckney ………	$4\frac{1}{2}$	$1\frac{9}{10}$	$9\frac{9}{10}$	$5\frac{1}{2}$	2	7
8. „ „	…………………	$3\frac{3}{10}$	$1\frac{1}{2}$	$8\frac{1}{5}$	$4\frac{1}{10}$		13
9. „ „	var. *rostrata* ……	$3\frac{1}{5}$	$1\frac{3}{5}$	$6\frac{4}{5}$	$3\frac{7}{10}$		5

—*Alfred Merle Norman; Kibworth, August* 12, 1857.

Description of a Galathea new to Science.—In December, 1856, at Bray, in the same boats where the channel-tailed shrimp (*C. Allmani*) first occurred to me, I met with several specimens of a small Galathea which I was at the time unable to identify with certainty, further than establishing its distinctness from both G. squamifera and G. strigosa. I was unable to procure a typical specimen of G. nexa; and the description in Bell's 'British Crustacea' did not afford sufficient details to enable me to pronounce a positive opinion as to the specific value of the characters exhibited by my specimens. Unwilling to suppose it a new species, I marked it provisionally as a variety of G. nexa, and as such exhibited and described it briefly at the Dublin Natural History Society, at a meeting held on the 13th of March, and more particularly at a meeting of the same Society held on the 17th of April. Last July, through the kindness of Mr. Adam White, of the British Museum, I had an opportunity of comparing it carefully with the authenticated suite of specimens of G. nexa in that collection, and found it specifically distinct from them, and also from what I think must be considered another nondescript species obtained by the Rev. A. M. Norman at Falmouth. The following is a description of the new species.

GALATHEA ANDREWSII, *Kinahan.*

Rostrum short. Armed on each side with from four to five flattened teeth, each tooth channelled in the middle, the hindermost pair situated on the orbit. Anterior pair of legs narrowed, elongate, covered with a few tubercles, these generally terminating in spines, a few squamulose. Tubercles arranged in somewhat parallel longitudinal lines. Hands slender, narrow, elongated; fingers very slender, nearly parallel, finely denticulate, very sparingly hairy, terminating in a fine nail, their exterior bo ders slightly spinous. Second joint of external foot-jaws not shorter than a thi the length of animal. Locality, coralline zones, Dalkey and Bray. The character the first pair of legs at once separates this from all our native Galatheæ ; in fact, th are hardly distinguishable from the same limbs in Munida Rondeletii. The flatten teeth (almost lobes) of the rostrum also afford a good distinctive character. The wh animal is much flatter and smoother than any of the others.

In naming this remarkable species, I have selected a name well known to Briti naturalists for careful researches into the Botany and Zoology of the west coasts Ireland, that of William Andrews, M.R.I.A., the discoverer of Geomalacus maculos and for many years past the active Honorary Secretary of the Dublin Natural Hist Society. Specimens of the new species are deposited in the British Museum, t Museum of the Royal Dublin Society and the Dublin Natural History Society.— *John Robert Kinahan ; Leonard Terrace, Donnybrook, August* 8, 1857.

Capture of Trochilium Allantiforme at Hungerford.—I have just added to my p vate collection a very fine specimen of this exceedingly rare insect, captured n Hungerford, in Berkshire. Possibly some of your readers could inform me the ex number of specimens known of this insect.—*James Gardner ;* 52, *High Holbo London.*

Abraxas Ulmaria at Coombe Wood.—Mr. Canham having told me that n Coombe Wood is a new locality for Abraxas Ulmaria, I forward you the particula My specimen was taken on the 6th of June this year, at half-past 5 p.m., at rest, some palings on the road from Kingston to the wood, just before you come to the lo at the end of the road through the wood leading from the Maldon station.—*Cha E. Challis ;* 2, *Old Cambridge Terrace, South Lambeth, July* 30, 1857.

Corrections to Mr. Waterhouse's List of the Aleocharidæ (*Zool.* 5632).—

Genus Ischnoglossa, "prolixa, (*Grav.*), *Er.*," and "elegantula, *Sahl.*, *Er.*," a
insert—rufo-picea, *Kraatz.*
Euryusa, add an asterisk before the name "acuminata."
Aleochara, "bipunctata." This determination remains a little doubtf
Tachyusa, remove the note of doubt after "scitula, *Er.*"
Oxypoda, erase "præcox," and insert "exoleta" in its place.
Homalota, add note of doubt to "debilicornis," sp. 2.
" species 13 erase.
" " 36 erase.
" " 52, instead of "nigricornis, *Thomss.*," insert—div
Markel.
" " 64, instead of "putrida, *Kz.*," insert—subrug
Kiesenw.
" " 73, after "vernacula, *Gr.*" read *Er.*
For "Eucephalus" read "Encephalus."
—*G. R. Waterhouse.*

PROCEEDINGS OF SOCIETIES.

ZOOLOGICAL SOCIETY.

Tuesday, July 28, 1857.—Professor BUSK, F.R.S., in the chair.

Dr. Gray communicated, through the Secretary, a paper containing a synopsis of e families and genera of Bark corals.

Dr. Gray also communicated a notice of a marine animal taken on the coast of ontrose, and presented to the British Museum by Mr. Beattie, Secretary of the ontrose Natural History Society. Dr. Gray provisionally named it Lineus Beattiei, ter its discoverer.

The Secretary read a paper containing the description of a web-producing lepidopte-us insect, from Wollombi, by A. W. Scott, Esq., member of the Legislative Assem-y in N. S. Wales. The paper was accompanied by a beautiful drawing, executed Miss Scott.

The Secretary also read a paper by Mr. Lovell Reeve, containing descriptions of x new shells from the collection of Sir David Barclay, of Port Luis, Mauritius.

Mr. Sclater read a paper 'On a Collection of Birds made by Signor Matteo Bot-ri in the vicinity of Orizaba, in Southern Mexico.' Of the species contained in this llection upwards of 120 were the same as had been previously obtained by M. Sallé the same country, and had been already mentioned in Mr. Sclater's papers upon . Sallé's birds. Other (41) species were not included in M. Sallé's collections, and re now enumerated, with remarks upon their nomenclature, geographical distribu-n, &c. The Society's attention was particularly called to three specimens,— a very rious American type, the Vireolanius metitophrys, *Bp.*; a new Zonotrichia, pro-sed to be named, after the discoverer, Z. Botterii; and an apparently new form of ireoninæ, which was characterized under the title Neochloe brevipennis.

Dr. Crisp exhibited a nest which he found, in May last, on the eastern coast of ffolk. It was covered with twigs and small branches like that of a magpie. Dr. risp believed that it was the deserted nest of the great gray shrike (*Lanius excubitor*).

Dr. Crisp read a second communication, on the presence or absence of air in the nes of birds. The object of the author was to correct the prevailing error that the nes of birds contain air, his conclusion being that the majority of British birds have air in their bones, and that, with the exception of the Falconidæ, but very few Bri-h birds had hollow femora.—*D. W. M.*

ENTOMOLOGICAL SOCIETY.

May 4, 1857.—W. W. SAUNDERS, Esq., President, in the chair.

Donations.

The following donations were announced, and thanks ordered to be given to the nors:—'Proceedings of the Royal Society,' Vol. viii. No. 25; presented by the So-ty. 'Journal of the Proceedings of the Linnean Society,' Vol. i. No. 4; by the So-ty. 'Revue et Magasin de Zoologie,' 1857, No. 3; by the Editor, M. F. Guérin-

Méneville. 'The Zoologist' for May; by the Editor. 'Stettinor Entomologische Zeitung,' Vol. xviii. Nos. 1–3; by the Entomological Society of Stettin. 'A Manual of British Butterflies and Moths,' Vol. i. and No. 14; 'The Substitute' for 1856—7; 'Elements of Entomology,' No. 7; 'The Entomologist's Weekly Intelligencer,' No. 27; by H. T. Stainton, Esq. 'On the Distribution of certain Species of Fresh-water Fish, and on the Modes of Fecundating the Ova of the Salmonidæ; by John Hogg, Esq., M.A., F.R.S., F.L.S., &c.;' by the Author. 'The Literary Gazette' for April; by the Editor. 'The Athenæum' for April; by the Editor. 'Proceedings of the Berwickshire Naturalist's Club,' Vol. iii. No. 7; by the Club. 'List of the Specimens of Lepidopterous Insects in the Collection of the British Museum,' Part XI., Noctuidæ;' by the Author, F. Walker, Esq., F.L.S., &c.

Exhibitions.

Mr. Stevens exhibited two pairs of Endromis versicolor recently taken in Tilgate Forest; also a pair of Euchirus longimanus from Ceram; and some fine species of Pieris sent by Mr. Wallace from the islands of Baley and Lomback, which were interesting from the variation of the species in these closely-adjoining islands.

Mr. Stevens also exhibited a specimen of Hetærius sesquicornis taken on the 2nd instant, in a nest of Formica fusca, at Hampstead; and a specimen of Lophopteryx Carmelita bred from the egg.

Mr. Foxcroft sent for exhibition specimens of Anchomenus Ericeti, *Panz.*, and other Coleoptera and Lepidoptera taken at Rannoch.

Dr. Power exhibited a box of British Coleoptera containing a fine series of Drypta emarginata, Sunius filiformis, Meloe brevicollis, and other rare species; also three specimens of Hetærius sesquicornis, taken from nests of Formica fusca at Hampstead.

Mr. Croker exhibited a box of Indian Locustidæ and Gryllidæ; also a fan used in Egypt to drive away the mosquitos.

The President observed that similar fans were used in the East Indies for this purpose.

Mr. Westwood exhibited a mutilated specimen of Acherontia Atropos which he had lately found in a bee hive. He observed that he had never heard of any instance having been recorded, in this country, of this moth proving destructive to bees; but his attention had been lately drawn to one of his hives, the stock of which did not commence working, and gradually got weaker and weaker, till at last scarcely 100 bees remained. On turning up the hive he discovered the remains of the specimen of A. Atropos, which he exhibited, attached to the comb. Whether the loss of the stock was to be attributed in any way to the moth was a matter of conjecture.

Mr. Westwood also exhibited a gigantic species of flea, for which he proposed the specific name of *imperator*. The specimen, which is about twenty times the size of the common Pulex irritans, was found dead in a bed at Gateshead.

Mr. Westwood also exhibited some cloth-like texture from South America, said to have been found inside a tree, and to be the production of some insect.

Major Vardon exhibited some insects brought from the interior of Africa by Dr. Livingstone, respecting which Mr. Westwood furnished the following details.

"The insects which Dr. Livingstone has placed in my hands are—

"1. The larva of a coleopterous insect, of which I am unable to determine the family, but think it may possibly be Cebrionideous. The head is flat, nearly circular, and furnished with strong triangular jaws; the six legs short and jointed; the body rather thickly clothed with short black hairs, and terminated by two large and very strong, horny, conical appendages, which shut together on their inner edge. The insect has the habit of burying its head in the sand, leaving exposed its strong forceps-like caudal appendage, which it moves about so as to attract the attention of passing insects, which, on approaching, are seized by it, and then conveyed to the mouth and devoured. It thus has a certain amount of analogy with the ant-lion, but is quite unlike that insect, both structurally and in the details of its habits.

"2. Two larvæ of another species of beetle, short, thick and fleshy, black in colour, with a yellow head; which seem to me to be referrible to the family Chrysomelidæ. When crushed, they are employed by the natives for the purposes of poisoning the tips of their arrows, which are dipped into the fluids of the body.

"3. A species of tick, about a quarter of an inch long, with a granulated and much-wrinkled body; which burrows into the feet of the natives between the toes, causing inflammation, which gradually ascends the legs, and other diseases. It is closely allied to the so-called poisonous bug of Persia, Argas reflexus. With the spemen were about forty young, with the cast skins of the eggs from which they had been hatched, and which were probably deposited by the female after being placed in the box.

"4. A species of the curious heteropterous genus Phyllomorpha, or dead-leaf bug, closely allied to the Cimex paradoxus of Sparrmann, brought from the interior of South Africa. It may be thus characterized:—

"PHYLLOMORPHA LIVINGSTONII, *Westw.*

"Fusco albidoque varia, longe spinosa, capite et parte antica prothoracis linea tenui media et hujus margine postico recto albis, lobis prothoracis maximis aliformibus, apice oblique truncatis, angulo antico truncaturæ acutissimo, lobis segmentorum 4 et 5 abdominalium maximis subæqualibus apice bipartitis, divisione singula acuminata. *Ph. Capicola et paradoxa* duplo major.

"5. The minute flat pupæ of a species of Psylla found on the leaves of a species of Bauhinia which cover themselves with a secretion similar to that of the Australian Wo-me-la, which is also the produce of a species of Psylla, and which is scraped off the leaves by the natives, and eaten as a saccharine dainty, as is also the case with the secretion brought home by Dr. Livingstone by the natives of Central Africa.

"6. Dr. Livingstone has fully confirmed the statements of Major Vardon relative to the destructive powers of the tzetze (*Glossina morsitans*, Westw. in Proc. Zool. Soc.) in its attacks upon horses, which it very often kills; it appears, however, not to attack asses."

Mr. Wollaston exhibited various Coleoptera lately captured near Farnborough, in Kent, in a high chalky valley belonging to Sir John Lubbock, including a series of Homœusa acuminata, *Mäerk.*, an insect which was hitherto unique as British, a single example having been obtained by himself a year ago, from out of an ant's nest, in the same locality.[1] He also exhibited specimens of Claviger testaceus and Lomechusa emarginata, likewise from the nests of Formica fusca; and an example of a species of Scopæus, apparently the first detected in this country. The other species to which he called attention were Callistus lunatus, Tritoma bipustulatum, Byrrhus dorsalis, and some scarce Pselaphidæ.

Mr. Smith exhibited the at present unique specimen of Tropideres sepicola, *Herbst*, taken in August last, by Mr. F. Plant, in Budden Wood, Leicestershire, and now presented by him to the British Museum.

Mr. Janson exhibited a specimen of Myrmedonia cognata, *Mäerk.*, being the third indigenous example hitherto recorded, taken by Mr. E. Shepherd in a nest of Formica fuliginosa; a pair of Atemeles emarginatus which he had taken *in copulâ*, and observed that he had not been able to detect any external sexual distinction; and a pair of Ampedus subcarinatus captured a few days since.

Mr. Bond exhibited specimens of Mixodia Hawkerana bred from sea spurge, and the pupa-cases from which they emerged.

Mr. Hawker also exhibited specimens of the Mixodia, and the shoots of the sea spurge in which the insects had assumed the pupa state.

Mr. Robinson exhibited a drawing of the larva of Polyommatus Artaxerxes feeding on Helianthemum vulgare.

Mr. Janson made some observations on Mr. Smith's remarks on Bledius hispidus, *Parfitt*, with reference to which subject Mr. Westwood denied that he had, as stated, informed Mr. Parfitt that this species was new to Science.

Mr. Newman communicated the following:—

A Word on the Pseudogynous Lepidoptera.

"The attention of entomologists has lately been directed to a phenomenon, which, under a severe scrutiny, seems to have arisen from the questionable position of an exception into the importance of a normal law. I allude to Agamogenesis. I have now to invite attention to what might be termed a compensating or balancing phenomenon, —a phenomenon which, instead of providing an unlooked-for multiplication of life, seems to dry up the source of life. This phenomenon is Pseudogynism, or the occurrence of false or unproductive females. It is very familiar to the breeders of domestic cattle, by whom such false females are called free martins. All attempts to overcome their sterility having of course been unsuccessful, they have been abandoned, and the beasts have been at once fattened for the butcher. I think entomologists have not hitherto recorded the existence of the same free martinism, or pseudogynism, among moths; it is nevertheless a fact that it exists to a very great extent, more than half the individuals of certain species proving sterile females. The first observation I made on this subject was in 1846, on an autumnal-disclosed specimen of Orthosia instabilis, the abdomen of which was opened, with a view of ascertaining the state of the eggs on the occasion of this unwonted first appearance on the stage of life. Eggs there were none; the abdomen was a hollow cylinder, without any trace whatever of an ovary, or indeed of any portion of the ordinary contents. The next observation was made on an example of Sphinx Convolvuli taken the same year. The captor slit open the abdomen longitudinally, from the anus to the insertion of the legs, intending to remove the contents prior to drying the insect for the cabinet. In this case also the abdomen was perfectly empty. My notes on this subject were laid by, but not forgotten, until 1851, when I received a notice from the South of France respecting Deilephila Celerio, which that year appeared in profusion in the months of September and October, the report stating that all the females were barren. This of course afforded more food for reflection, and in 1852 I sacrificed a number of Sphinx Ligustri and our of three species of Smerinthus, thinking to find and investigate a similar phenomenon. In this I was disappointed: all the specimens were summer-disclosed, and all had the ovaries distended with mature eggs. I was now inclined to assume that the previously observed facts were accidental or exceptional, and not to be recorded as the results of any universally operating law; but, last autumn, that is the autumn of 1856, the subject was again brought before me by the examination of recently disclosed females of Acherontia Atropos, which proved perfectly sterile. Now, as I knew there was a summer disclosure of this insect, giving rise, among the raw recruits of our science, as in the case of hybernating Rhamni, to a double-brooded hypothesis, I could not but be struck with a phenomenon that began to assume the weight and importance of a fixed law. It appeared, on comparing and arranging a series of observed facts, 1st, that certain Lepidoptera had two periods of disclosure, the æstival and the autumnal; that the summer batch, produced while the leaves were in full vigour and afforded abundant food for the larvæ, was fruitful; the autumnal brood, disclosed when the leaves were about to fall, was barren. The autumnal brood seems only to occur in cases where the number of the specimens has been much larger than usual, and when the species, if multiplied by uniform and ordinary fecundity, would either more than exhaust the usual food-plant, and would therefore starve, or would seek other food, and thus defoliate our vegetation. The phenomenon, therefore, if reduceable to a law, is yet another proof of that 'wisdom of God in creation' which was the favourite theme of our greatest English naturalist, and the illustration of which is the cherished object of every right-minded teacher at the present day. Before offering these remarks to the Entomological Society I thought I would submit the facts to the scrutiny of a second entomologist; and for this purpose I selected the 'Lepidopterologiæ Princeps' at once, thus passing by, not only the *habitués* of what might be called our 'Circumlocution Office,' but also those really hard-working investigators of truth, our Wollastons, our Douglases and our Powers. Mr. Doubleday's experience, I am happy to say, exactly coincides with my own. The following extract from his letter contains irresistible evidence of the prevalence of my facts:—'The first pupa,' Mr. Doubleday writes, 'that I ever possessed of Acherontia Atropos produced a female moth, in July, and was full of eggs. In 1846 I had a number of larvæ of the same species; these became pupæ at the usual time, and eight or ten moths were produced at the end of September or beginning of October; ALL the females were barren, their abdomens being quite hollow. Most of the female Convolvuli that I took the same year [it was the great Convolvuli year] were barren, but I took one or two which laid eggs; not one of the eggs, however, hatched. I believe the females of some species are mostly barren when disclosed in the autumn; but where there are two distinct broods of a species, a vernal and autumnal brood, both are fertile. I believe that all species occasionally produce barren females.'"

Mr. F. Smith read the following extract from a letter addressed to him by Mr. R. T. Grant, from Canada West (Orillia):—

Letter from Mr. R. T. Grant, West Canada.

"The first insects make their appearance about the middle of April, on the blossoms of the sallows, which are very plentiful here, and swarm with insects of all orders, even before the snow has disappeared. Fancy the ground covered with snow to a great depth, and the beautiful butterflies sporting in the hot sunshine. The first to appear is Vanessa Antiopa, which is extremely abundant here; Andrenidæ are also very plentiful; Andrena Clarkella is here, and A. chrysosceles and a very dark species, like Clarkella but handsomer. I have also found Colletes, Sphecodes and Halictus. You say in your Bee-Book that you know of no other genus among the solitary bees but Sphecodes and Halictus that remain torpid in the winter; but there is one here, a genus I am quite unacquainted with, very like Halictus; I have found two species, both of a beautiful golden green; the commonest of them is found upon every log or stump." (The bees here mentioned belong to my own genus Angochlora, of which I have enumerated thirteen species from North America, and seventeen from different parts of South America; they are closely allied to the genus Halictus, and are remarkable for having the eyes more or less reniform, some species distinctly so, like a wasp.) "I have also taken several Nomadæ, one Cœlioxys, and two species of Stelis, Melecta and Anthophora; a very large Chelostoma, and four species of Bombi; also one Apathus. Here are also great quantities of ants, of which I hope to send you a great number. I have met with one species of the genus Tapinoma. The greatest annoyance here is from flies, which in fact are the only things I dislike in the country. When you go out in summer, you are immediately pounced upon by a swarm of mosquitoes, black flies, cattle and deer flies, all eager to suck your blood. The mosquitoes are truly awful. One day, putting off in a canoe to cross a lake, I was completely covered with them; and so dreadful were their stings that I was driven almost mad. Their bite is extremely sore, and itches to a degree no one can imagine; the swelling was so great upon myself that I could neither close my hands nor move my fingers for several days. The only way to obtain rest at night is to light heaps of rotten wood and Fungi round your house. The contrast of temperature here is very great, 96° in the shade in July, and 32° below zero in January. To-day the cold is intense. I am writing this before a red-hot stove, to prevent the ink from freezing."

Mr. Douglas read the following note on

Trachys pygmæa.

"In the 'Revue et Magasin de Zoologie' of M. Guerin-Méneville, No. 2, 1857, is a report of a memoir by M. Leprieur, read by M. Dumeril at a Meeting of the Academie des Sciences de Paris held on the 2nd of February, 1857, intituled 'Essai sur les Métamorphoses du Trachys pygmæa, insecte de la famille des Buprestides,' from which I beg to present the following extract, which will be the more interesting as it relates to an insect which is a native of Britain, but hitherto exceedingly rare in our collections.

"'M. Leprieur, after recapitulating in his memoir several observations already made, by authors whom he quotes, upon the larvæ of some coleopterous insects which live in the interior of stems of plants, under the bark or in the woody tissue, mentions those in particular which are developed in plants of the order Malvaceæ. The author relates that having remarked upon tufts of the mallow several leaves bearing vesicular spots, coarsely rounded in their circumference, of a yellow tint, contrasting with the green colour of the leaves, he sought to know the cause of them; and he supposed that they had been the abode of some insect. The following year he was fortunate enough to prove the presence in these little cavities of a Buprestis, which, in the space of two or three weeks, went through all the phases of its development. This was to him an extraordinary and unknown fact, and he studied it in all its details. They are very singular, but are too circumstantial to be reproduced here.

"'The author of the memoir describes and figures the larva of this Trachys, which has a very peculiar form, as well as the pupa, which is transformed without being enveloped in a cocoon. He compared this larva with those of other Buprestidæ already known, in order to indicate by figures the peculiarities which distinguish them. He examined the interior of the vesicle of the epidermis, where he found the remains of the former skin, those of the digested matter which had served for the growth of the larva, and proof that, among other parasitic larvæ, that of a Cynips for example [?], had made their food of it, and took its place.

"'We think that the memoir of M. Leprieur confirms and developes much better the first observation of Réaumur upon the larvæ of the Trachydes, all of which have very probably the same manner of living; that his researches establish a positive fact upon a point too little known in the history of these insects, that the exactness of his researches merits the approbation of the Academy, which has received them with interest, and that the publication of them is very desirable.'"

Part IV. of Vol. iv., N. S., of the Society's 'Transactions,' published in April, was on the table.

June 1, 1857.—W. W. SAUNDERS, Esq., President, in the chair.

Donations.

The following donations were announced, and thanks ordered to be given to the donors:—'The Natural History Review,' 1857, No. 2; presented by the Dublin University Zoological Association. 'The Zoologist' for June; by the Editor. 'Revue et Magasin de Zoologie,' 1857, No. 4, by the Editor, M. F. E. Guerin-Méneville. 'The Literary Gazette' for May; by the Editor. 'The Journal of the Society of Arts' for May; by the Society. Certain Insects taken in the interior of Africa by Dr. Livingstone; by that gentleman. 'Elements of Entomology,' Nos. 8 and 9; 'The Entomologist's Weekly Intelligencer,' Nos. 28 to 35 inclusive; by H. T. Stainton, Esq.

Election of a Subscriber.

Henry Gorham, Esq., of 9, Hornton Terrace, Kensington, was elected a Subscriber to the Society.

Exhibitions.

Mr. Bond exhibited a beautiful series of Retinia Turionana bred from larvæ found in the shoots of Scotch firs in Buckinghamshire; also living larvæ of Coleophora pallialella and C. currucipennella from Richmond Park.

Mr. Stevens exhibited Stenolophus elegans and other Coleoptera lately taken at Sheerness.

The Rev. H. C. Stowell sent for exhibition a fine dark variety of Melitæa Euphrosyne.

Mr. Stainton exhibited the living larva of Hypercallia Christiernana received from Switzerland.

Mr. Janson exhibited various species of Coleoptera captured by himself in the neighbourhood of London during the last month, and made the following observations in reference to them:—

"1. Rhyncolus truncorum, *Germar*, *Gyll.* A novelty to our list, notwithstanding that its name for many years there held a place; but, as Mr. Walton has shown, the insect thus designated by the late Mr. Stephens pertains to the genus Phloeophagus, being the P. æneopiceus of Schönherr.

"Of the two species of Rhyncolus extant in British collections and enumerated by Mr. Walton, the present insect is most nearly allied to R. cylindrirostris, *Oliv.* (lignarius, *Marsh.*, *Steph.*), from which it may be at once distinguished by its more robust habit, its singularly depressed eyes, whose position may be styled infero-lateral, no trace of them being discernible on regarding the insect from above, and by its slender tarsi.

"2. Phloeophagus spadix, *Herbst*, *Schönh.*, *Walton.*

"3. Leptinus testaceus, *Müller*, *Hardy.*

"4. Xantholinus glaber, *Nordman*, *Erichson*, of which the only indigenous example previously known is in the cabinet of the late Mr. Kirby, in whose manuscript catalogue it is denominated Gyrohypnus rotundicollis; the insect, however, representing Xantholinus rotundicollis of Stephens in his collection is a small variety of X. punctulatus, *Fab.*, *Eric.*

"5. Stenus contractus, *Eric.* (fornicatus of Kirby's but not of Stephens' collection; basalis, *Curtis.*)

"6. Homœusa acuminata, *Mäerkel*, *Kraatz*, *Wollaston.*

"7. Tomicus (Bostrichus) bispinus, *Ratzeburg*, *Bold*, *nec Guyon.*

"8. Homalota confusa, *Mäerkel*, *Kraatz*, *Waterhouse.* One of three specimens taken, a few days since, in a nest of Formica fuliginosa, by my kind and assiduous friend and colleague Mr. Edwin Shepherd."

Mr. Janson likewise exhibited a box of Coleoptera just received from Rannoch, where they had been recently taken by Mr. Foxcroft. The species most noteworthy were Ampedus tristis, Rhyncolus ater, both sexes of Dictyopterus Aurora, Elaphrus uliginosus, Anchomenus Ericeti, and Calathus micropterus.

Mr. Smith brought for distribution amongst the members some series of named specimens of British ants, and exhibited some cocoons said to have been found in the *débris* of a hornet's nest, and from one of which his correspondent assured him a male hornet had emerged; on examination, however, it was discovered that the remaining cocoons contained Bombi.

Mr. Wilkinson observed that he had tested a portion of the cloth-like substance exhibited at the last Meeting, which was said to be the production of some insect; the result of his experiments, however, proved it to be of undoubted vegetable origin.

Mr. Westwood called attention to the continuation of Sepp's 'Nederlansche Insecten,' the publication of which had been resumed in Holland: he was happy to say that entomologists appeared to be going energetically to work in that country, the recently published parts of the 'Transactions of the Netherlands Entomological Society' containing several excellent memoirs.

15 SE 57

To Entomologists, Authors, and Lovers of Natural History.

MR. JAMES FOXCROFT, the well-known and experienced Collector, begs to return his sincere thanks to the Trustees of the British Museum, the Nobility and Gentry, and also particularly to the Members of the Entomological Society, for the patronage he has received for a number of years as a Collector of British Lepidoptera and Coleoptera. He begs to state that he intends to visit SIERRA LEONE and the RIVER GAMBIA, leaving this country in November, 1857 (this will be after he returns from his Summer's Collecting in Scotland this year), and that he will remain in Africa during one, two or three Seasons, according to the encouragement he may receive. He will devote the whole of his time to searching for and collecting INSECTS OF ALL ORDERS. In order to enable him to meet the expense attending this journey, he is desirous of obtaining a limited number of Subscribers, at £5 per annum, for one year's collecting of either Lepidoptera or Coleoptera; for two seasons' Subscription £10 for each order; and for the three seasons, £15 for each Order. The money subscribed is to be paid to Mr. SAMUEL STEVENS, 24, Bloomsbury Street, London, as early as convenient, as Mr. FOXCROFT wishes to know how many Subscribers he can obtain before leaving England, in order that he may provide a sufficient number of boxes to contain each Subscriber's share separately, it being his intention, if he stops more than one season, to share the whole of the Insects annually. Each box will be sealed, directed with the Subscriber's name and address, and enclosed in one large packing-case addressed to Mr. SAMUEL STEVENS. Any Subscriber not feeling satisfied with what Insects he gets the first year for his Subscription may withdraw his name, as Mr. FOXCROFT's intention is only to take the first year's Subscription before starting, but will take names for the three years. All packing-cases or boxes that the insects are sent in are to be returned to Mrs. FOXCROFT. Any person wishing for further information can obtain it upon application to Mrs. FOXCROFT at 3, Union Yard, Oxford Street, near Orchard Street, London, West District.

N.B. No person will get Coleoptera who subscribes for Lepidoptera only, and no one who subscribes for Coleoptera only will receive Lepidoptera.

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Mr. Foxcroft begs to inform his friends and subscribers that they are requested to pay their yearly subscriptions (to Mr. Samuel Stevens, Natural History Agent, 24, Bloomsbury Street, London), for his intended visit to Africa to collect Insects, by the third day of November next, as the packet he intends to go by leaves England between the 3rd and 12th of November; and no person can become a Subscriber after Mr. Foxcroft leaves.

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